VECTOR® MANUFACTURING, Ltd.

© 2000 VECTOR MANUFACTURING, Ltd.
FT. LAUDERDALE, FL 33312 MADE IN CHINA

VECTOR® MANUFACTURING, Ltd.

VEC028AC

POWER City™

MULTI-FUNCTION AC/DC POWER SYSTEM

VEHICLE JUMP STARTER • 200 WATT INVERTER
INFLATOR/DEFLATOR • WORKLIGHT/LANTERN

OWNER'S MANUAL & WARRANTY INFORMATION

THIS MANUAL CONTAINS IMPORTANT INFORMATION REGARDING SAFETY, OPERATION, MAINTENANCE AND STORAGE OF THIS PRODUCT. BEFORE USE, READ AND UNDERSTAND ALL CAUTIONS, WARNINGS, INSTRUCTIONS AND PRODUCT LABELS, PLUS YOUR VEHICLE'S BATTERY MANUFACTURER GUIDELINES. FAILURE TO DO SO COULD RESULT IN POSSIBLE INJURY OR PROPERTY DAMAGE.

4140 SW 28TH WAY, FT. LAUDERDALE, FL 33312
TEL 954-584-4446 • FAX 954-584-5556

CONTENTS

1. INTRODUCTION 3
   - 1.1 Additional Key features 4
   - 1.2 Use Power City To: 4
   - 1.3 Parts and Storage Locations 5
2. USE AS A JUMPSTART SYSTEM 5
   - 2.1 Jumpstart Warnings 5
   - 2.2 First Aid 6
   - 2.3 Jump Start Procedure 6
3. USE AS A 12 VOLT DC POWER SUPPLY 6
4. POWER INVERTER 7
   - 4.1 Principles of Operation 7,8
   - 4.2 Connecting to Power Source away from Main Unit 8,9
   - 4.3 Powering an AC Load 9
   - 4.4 Placement of The Power Inverter 9,10
   - 4.5 Operating Tips 10
   - 4.6 Inverter Fuse Replacement 10
5. INFLATOR/DEFLATOR 10
   - 5.1 Inflator Use in Main Unit 11
   - 5.1.1 Inflation Procedure 11
   - 5.1.2 Deflation Procedure 11
   - 5.2 Inflator Away from Main Unit 11,12
   - 5.2.1 Inflation/Deflation Procedure Away from Main Unit 12
   - 5.3 Returning the Inflator/Deflator to Main Unit 12
6. LANTERN USE AND RECHARGING 12
   - 6.1 Lantern Use and Removal 12,13
   - 6.2 Lantern Trickle Charge while mounted on Unit 13
   - 6.3 Lantern Operation and AC/DC Recharge away from Main Unit 13
   - 6.4 Lamp Replacement 14
7. RECHARGING MAIN UNIT 14
   - 7.1 AC Recharging Main Unit 14
   - 7.1.1 AC Recharge of Main Unit and Trickle Charge of Lantern 14,15
   - 7.2 DC Recharge Main Unit 15,16
   - 7.3 Alternate DC Recharge 16
   - 7.4 Simultaneous DC Recharge and Inverter Operation 16
8. MAINTENANCE/REPLACEMENT PARTS 16
9. BATTERY DISPOSAL AND WARNINGS 16
10. SPECIFICATIONS 17

WARRANTIES 18,19

1. INTRODUCTION

Congratulations on selecting the Vector Power City™ Multi-Function AC/DC Power System. Power City is an advanced power and jumpstart system with unique features that set it far above the value and utility of ordinary jump starters. It supplies AC for 110 volt appliances to 200 watts, and DC for 12 volt appliances to 20 amps. It can jumpstart any vehicle with a standard 12 volt DC electrical system: boat, truck, car, airplane, RV, personal watercraft, snowmobile, tractor, etc.

This advanced design is ideal for emergencies and can also enhance your fun by powering appliances on the road, at the beach and at the campsite. Be sure to read and understand all WARNINGS and CAUTIONS before using this product. Please read this guide carefully before use to ensure optimum performance and avoid damage to the system or items that you are using it with.

Power City™ has several exclusive features that set it apart from other similar devices. Primarily, it includes a special, patented, built-in mounting for a supplied, removable 12 VDC to 110 volt AC power inverter. This allows you to operate 110 volt AC devices to 200 watts, while still maintaining the Jump Starter's one-piece, compact styling. When the inverter is removed from the Main Unit it can be fully powered from any accessory socket that can provide up to 20 amperes at 12 VDC.

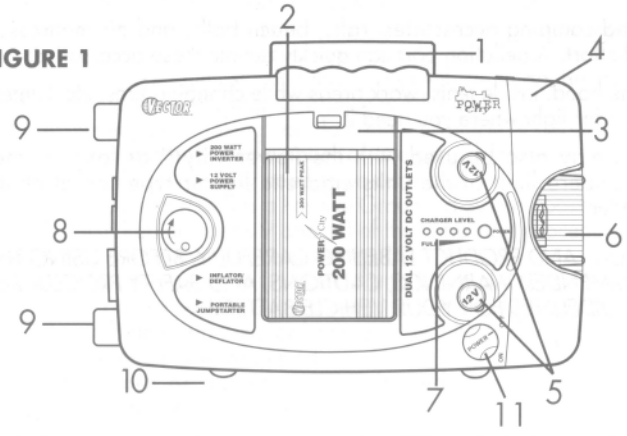
Another standard feature is a high volume, self-contained, yet removable Inflator/Deflator. This Inflator allows quick inflation of beach balls, rafts, mattresses and virtually any low-pressure inflatables. Three different sized nozzles allow for easy connection to all popular inflatables.

A removable Lantern operates from it's own self-contained battery. This feature is invaluable when it becomes necessary to locate battery terminals while preparing to jumpstart a dead battery in the dark. When the Lantern assembly is removed from the Main Unit it can also be powered and recharged by means of a supplied cable.

It is also ideal for use with Vector 12 volt DC cordless, portable, rechargeable appliances with ratings up to 20 amperes. For information about Vector appliances, contact Vector Technical Support for the location of the nearest retailer.

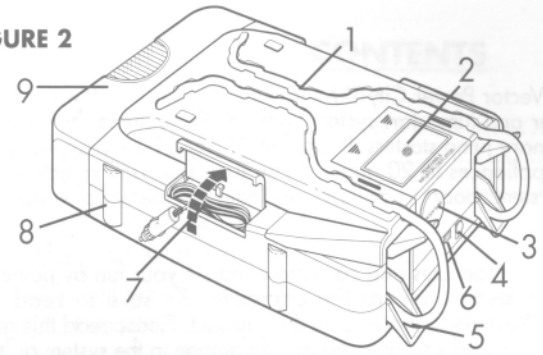
The unit has an easy-to-read, series of LEDs (Light Emitting Diodes) arranged as a Charge Status Display that shows when the unit is fully charged, or the level of charge in the battery (from Low to Full). The Charge Status Display activates whenever the Charge Status Push-button is pressed or automatically during AC Recharge operations. Two 12 volt DC cigarette lighter-type sockets are provided for use with appliances that can operate from a cigarette lighter type accessory socket. Note that all exposed electrical sockets recharge ports and inflator ports have covers that help keep out dirt, dust and moisture. All covers must be open for socket or port use; closed after use.

FIGURE 1



1. HANDLE
2. 200 WATT INVERTER
3. INVERTER COVER
4. LAMP ASSEMBLY
5. ACCESSORY SOCKETS
6. WORK/AREA LIGHT
7. BATTERY STATUS: DISPLAY & STATUS PUSH-BUTTON
8. INFLATOR/DEFLATOR DEFLATION PORT
9. BATTERY CLAMP HANDLES
10. FEET
11. SAFETY SWITCH

FIGURE 2



1. **JUMPSTART CABLES & CABLE STORAGE CHANNELS**
2. **INFLATOR/DEFLATOR HATCH**
3. **INFLATOR/DEFLATOR INFLATION PORT**
4. **AC RECHARGE PORT**
5. **CABLES CLAMPS**
6. **INFLATOR/DEFLATOR ON/OFF SWITCH**
7. **ACCESSORY CABLE STORAGE HATCH**
8. **FEET**
9. **WORKLIGHT/LANTERN**

1.1 ADDITIONAL KEY FEATURES

- ON/OFF safety power switch (no key required, no key to get lost!).
- Cordless/rechargeable-includes recharge adapters for standard 110 volt AC wall socket, and vehicle's 12 volt DC accessory outlet using adapter cables.
- Powerful-400 instantaneous cranking amps; 900 peak amps.
- Includes non-spillable, maintenance-free, heavy duty, 17 ampere hour sealed lead-acid battery and 2.3-ampere hour, 6 volt Lantern battery
- Requires no maintenance (other than recharging) for optimum operation.
- Heavy duty, industrial grade copper clamps and #4AWG jumper cables-with exclusive recessed cable holsters.
- Cable storage channels that keep jumper cables out of the way until they are needed and allow Power City to securely lay against flat surfaces.
- 110 volt AC charger is Underwriter Laboratories safety tested and listed.
- Easy-to-read LED Battery Charge Status Display - activated by pressing the Charge Status Button and automatically activated during AC recharge.

1.2 USE POWER CITY TO:

- Jumpstart (using heavy duty battery cable and clamps):
  Any vehicle with a standard 12 volt DC battery system: boat, truck, car, airplane, RV, personal watercraft, snowmobile, tractor, etc.

- Power/Recharge: AC Laptop computers and printers, TVs up to 9", reading lamps, fans, small appliances and power hand tools, cellular phones, camcorders, power tool rechargeable batteries that have an appropriate recharging adapter with a 110 volt AC standard-type plug.

- Operate (using 20 ampere rated 12 Volt Accessory Sockets): 12 volt DC Fans, fluorescent work lights, cellular phones*, air compressors, spotlights, TVs, portable radios, cassette or CD players, and more. *Can quick-charge a cellular phone by using the phone's 12 volt DC adapter cord.

- Inflate popular beach and camping accessories: rafts, beach balls, and air mattresses, saving valuable time and effort. A deflation port can quickly deflate those accessories.

- Illuminate areas: under the hood, inside tents, work areas while changing tires, etc. Lantern is removed from Main Unit for light where you need it.

NOTE: Other appliances may also be used with the Power City™ as long as they do not exceed the 20 ampere limit of the units cigarette lighter type socket or the 200 watt limit of the inverter.

READ INSTRUCTION MANUAL AND PRODUCT LABELING CAREFULLY, BEFORE USING THIS PRODUCT. FOLLOW RECOMMENDED WARNINGS, CAUTIONS, AND SAFETY PROCEDURES, AND MANUFACTURER'S GUIDELINES FOR YOUR VEHICLE BATTERY.

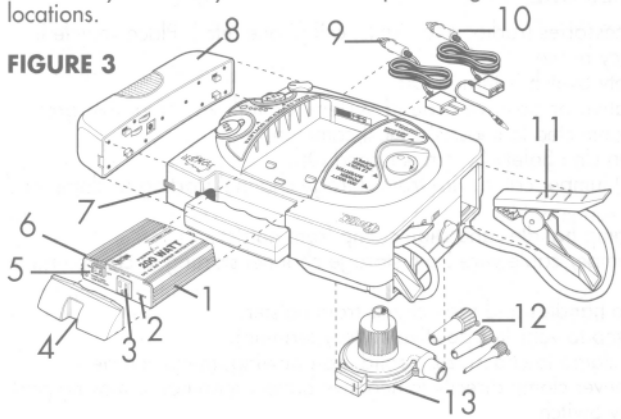
IMPORTANT:
This unit is delivered in a partially charged state - you must fully charge it before using it for the first time. Initial AC Charge should be for 24 hours.

Refer to Section 7 for use of Recharge Cables, AC Adapter and detailed charging instructions.

1.3 PARTS AND STORAGE LOCATIONS

Power City has many functions and parts. Figure 3 shows all removable parts and their locations.

FIGURE 3



1. **INVERTER**
2. **POWER LED (GREEN)**
3. **AC RECEPTACLE**
4. **INVERTER COVER**
5. **OVERLOAD/LOW BATTERY SHUTDOWN**
6. **INVERTER ON/OFF SWITCH**
7. **LANTERN LATCH**
8. **LANTERN**
9. **DC RECHARGE CABLE**
10. **INVERTER POWER CABLE**
11. **JUMPSTART CLAMP**
12. **INFLATOR NOZZLES (3)**
13. **INFLATOR**

2. USING POWER CITY AS A JUMPSTART SYSTEM

Read all Warnings, Cautions and Notes carefully before using these instructions.

2.1 JUMPSTART WARNINGS

- There is risk of explosive gas being released when batteries are Improperly charged or discharged. Failure to follow instructions may Cause property damage, explosion hazard, and/or personal injury
- Do not smoke while jump starting
- Only attempt to jumpstart a vehicle or boat in a well ventilated Area
- This power system is to be used ONLY on vehicles or boats with 12 volt DC battery systems
- Do not attempt to jumpstart a frozen battery
- Do not wear vinyl clothing when jumpstarting a vehicle – friction can cause dangerous static electricity sparks
- Remove all metal jewelry - this can cause short circuits. Always use protective eyewear when jump starting: contact with battery acid may cause blindness and/or severe burns.
- Never touch Power City red and black clamps together - this can cause dangerous sparks, power arcing, and/or explosion
- Do not attempt to jumpstart a frozen battery
- After use as jump starter, turn off Power City safety switch. Keep out of reach of children.
- Vehicles that have on-board computerized systems may be damaged if vehicle battery is jumpstarted. Before jumpstarting this type of vehicle, read the vehicle's owner's manual to confirm that external-starting assistance is advised
- Excessive engine cranking can damage the vehicle 's starter motor. If the engine fails to start after the recommended number of attempts, discontinue jumpstart procedure and look for other problems that may need to be corrected
- If vehicle to be started has a Positive Grounded System (positive battery terminal is connected to chassis): Replace steps 9 and 10 of the jump start procedure (below) with the following steps A and B, and then proceed to step 11
  - A. Connect negative (-) black clamp to vehicle battery 's negative terminal.
  - B. Connect positive (+) red clamp to vehicle chassis or a solid, non-moving, metal vehicle component or body part. DO NOT clamp directly to positive battery terminal or moving part.
- Replace worn or defective parts immediately - contact Vector Technical support Department at (954) 584-4446.

2.2 FIRST AID:

- **Skin:** if battery acid comes in contact with skin, rinse Immediately with water, then wash thoroughly with soap and water. If redness, pain, or irritation occurs, seek immediate medical attention.
- **Eyes:** if battery acid comes in contact with eyes, flush eyes Immediately-for minimum of 15 minutes-seek immediate medical attention.

2.3 JUMPSTART PROCEDURE

1. Turn Off ignition and all accessories (radio, a/c, lights, cell phone, etc.). Place vehicle in "park" and set the emergency brake.
2. Make sure Power City's Safety Switch is turned Off.
3. Observe jumpstarting negative or positive ground system, as follows: Negative ground (negative battery Terminal connected to chassis) - most common.
4. Make sure Power City's Main Unit Safety Switch is turned Off.
5. Carefully lift negative (black) jumper cable wire from storage channel starting at clamp end of cable.
6. Squeeze negative (black) clamp handles and slide clamp from holster.
7. Carefully lift positive (red) jumper cable wire from storage channel starting at clamp end of cable.
8. Squeeze positive (red) clamp handles and slide clamp from holster.
9. Connect positive (+) red clamp to vehicle's positive battery terminal.
10. Connect negative (-) black clamp to chassis or a solid, non-moving, metal vehicle component or body part - never clamp directly to negative battery terminal or moving part.
11. Turn On Power City's Safety Switch
12. Start vehicle (crank engine in 5 - 6 second bursts) If engine won't start, seek help and go to step 15.
13. After vehicle starts turn Power City's Safety Switch to Off position.
14. Leave engine running.
15. Remove clamps (disconnect the negative (black) clamp first; followed by the positive (red) clamp and store cables and clamps.
16. Squeeze negative (black) clamp handles and slide clamp into holster.
17. Carefully press negative (black) jumper cable wire into storage channel starting at Lantern end of cable.
18. Squeeze positive (red) clamp handles and slide clamp into holster.
19. Carefully press positive (red) jumper cable wire into storage channel starting at Lantern end of cable.
20. Recharge Power City as soon as possible.

3. USE AS A 12 VOLT DC PORTABLE POWER SUPPLY

WARNING: NEVER INSERT A CIGARETTE LIGHTER IN POWER CITY'S ACCESSORY SOCKET.

1. Lift up the cover of the unit 's 12 volt DC socket.
2. Insert the 12 VOLT DC plug from the appliance into the cigarette lighter type socket on the unit.
3. Switch on the appliance, as usual.
4. Periodically press the Battery Status Push-button to check battery status.

CAUTION: DO NOT USE POWER CITY™ TO OPERATE APPLIANCES THAT DRAW MORE THAN 20 AMPS.

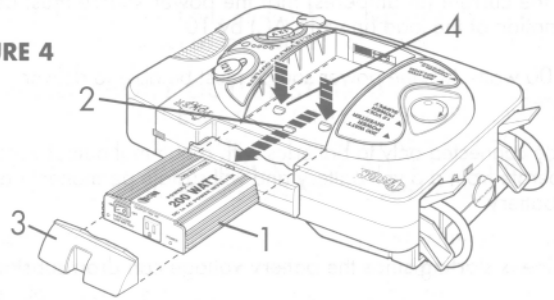
4. POWER INVERTER

The Power Inverter is an electronic device that converts low voltage DC (direct current) from a battery or other power source to standard 115 volt 60 Hz AC (alternating current) household power. Safety features include an audible low battery alarm and automatic shutdown to prevent damage to your Power City main battery.

The Inverter can be used away from the Main Unit by removing it from it's mounting on the Main Unit and powering it from the Inverter Power Cable. Depress the Inverter Cover Tabs and remove. Then press down on the two tabs that lock in the Inverter and release the Inverter and slide it out. Please read the operating instructions thoroughly prior to use. Pay particular attention to the CAUTION and WARNING statements related to this inverter. See Figure 4 for inverter access, and removal.

Removing the cover that protects the AC receptacle on the inverter can access the inverter. **NOTE:** On this end of the inverter are: the AC receptacle, the On/Off Switch, a green LED and a red LED. The green LED, when lit, indicates power is applied to the inverter and it is operating properly. The red LED, when lit, indicates that something caused the inverter to shut down. The green LED will not be lit under shutdown conditions. Inverter shutdown is caused by: under- or over-voltage, overheat or overload. If the inverter shuts down, first check the Main Unit battery (use Battery Status Push-button and Display) to see if the main battery is discharged, Recharge the battery as soon as possible. If another condition caused the shutdown, investigate the appliance for excessive wattage or a connection between neutral and ground (explained later). If the inverter feels very warm let it cool before restarting it. Restart is accomplished by turning the Inverter Switch Off, then On.

FIGURE 4



1. **INVERTER**
2. **INVERTER COVER TABS**
3. **INVERTER COVER**
4. **INVERTER LOCK-IN TABS**

OPERATION IS SIMPLE:

- Remove Inverter's 110 volt Receptacle Cover
- Plug the appliance's 110 volt plug into the North American Standard AC receptacle on the inverter.
- Turn On the inverter power switch.
- Turn On the appliance, and operate it as usual.
- After use, turn off the power inverter's On/Off Switch

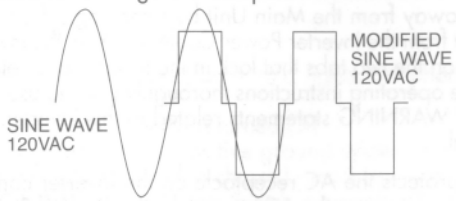
The inverter can be used away from the Main Unit by first removing the cover that protects the AC receptacle and switch Off the inverter (see Figure 3). Then pressing the tabs that hold the inverter in place, slide the inverter in the direction shown. Note that there is a connector on the Main Unit that mates with the flat pins. This provides 12 VDC from the battery. The DC Recharge Cable can plug into this connector to provide an alternate means of DC recharge when the inverter is removed from the Main Unit.

4.1 PRINCIPLES OF OPERATION

The Power Inverter converts power in two stages. The first stage is a DC-to-DC conversion process that raises the low voltage DC at the inverter input to 145 volts DC. The second stage is the actual inverter stage that converts the high voltage DC into 115 volts, 60 Hz AC, Modified Sine Wave (MSW). MSW is a waveform that has characteristics similar to the sine wave shape of utility power. This type of waveform is suitable for most AC loads, including linear and switching power supplies used in electronic equipment, transformers, and motors.

The modified sine wave produced by the Power Inverter has an RMS (root mean square) voltage of 115 volts, which is the same as standard household power. Most AC voltmeters (both digital and analog) are calibrated for RMS voltage under the assumption that the waveform measured will be a pure sine wave. These meters will NOT READ the RMS voltage of a modified sine wave correctly. They will read about 20 to 30 volts low when measuring the output of the power inverter. For accurate measurement of the output voltage of this unit, use a voltmeter marked "TRUE RMS". Figure 5 compares a Modified Sine Wave with a True Sine Wave.

FIGURE 5



The Power Inverter is incorporated into the Power City Main Unit. It's DC source is the main unit's 12 volt 17AH battery. Power is provided to the inverter through two flat contacts on the bottom of the inverter. The inverter operates on stored energy in the main battery. With a full charge on the main battery, the inverter will supply a load of 100 watts for approximately one hour and 15 minutes. Lower wattage loads will operate longer, higher wattage loads will operate for a shorter time using energy from the main battery.

When the inverter is operated away from the main unit, the power source must provide between 11 and 14.5 volts DC and must be able to supply the necessary current (amps) to operate the load. The power source may be a battery or a well-regulated DC power supply. To obtain a rough estimate of the current (in amperes) that the power source must deliver, simply divide the power consumption of the load (in watts AC) by 10.

Example: If a load is rated at 100 watts AC, the power source must be able to deliver:
100 ÷ 10 = 10 amperes

CAUTION: The inverter must be connected only to batteries with a nominal output voltage of 12 volts. The unit will not operate from a 6 volt battery and will sustain permanent damage if connected to a 24 VOLT battery.

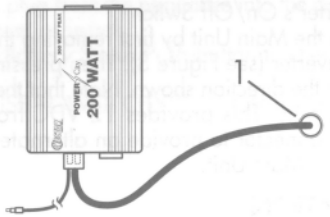
may not operate while the engine is starting since the battery voltage can drop substantially during engine cranking.

The Inverter draws less than 0.06 ampere from the battery when it is not supplying power to a load.

4.2 CONNECTING TO POWER SOURCE AWAY FROM MAIN UNIT

If the inverter is removed from the Main Unit for use away from the Main Unit, the all black Inverter Power Cable (with pigtail) is used to connect the inverter to another DC source.

Figure 6



1. TO DC CIGARETTE LIGHTER TYPE ACCESSORY OUTLET

The Power Inverter has two flat metal contacts that normally mate with the connector on the main unit. These flat contacts are connected to the Inverter Power Cable (all black color) when the inverter is removed from the unit and operated away from the unit. The Inverter Power Cable equipped with a cigarette lighter type plug which is then plugged into any 12 Volt DC source that can supply the current to operate the load on the inverter. The tip of the plug is positive and the side contact is negative. Connect the Power Inverter to the power source by inserting the DC plug firmly into the cigarette lighter (accessory) socket of a vehicle or other DC power source.

With a typical vehicle battery, a minimum operating time of 2 to 3 hours can be expected. In most instances, 5 to 10 hours of operating time is achievable. However, Vector recommends that the operator start the vehicle every 2 to 3 hours to recharge the battery system. This will guard against any unexpected shutdowns of the equipment and will ensure that there is always sufficient battery capacity to start the vehicle's engine. The inverter will sound it's alarm when DC voltage drops to 10.6 volts.

CAUTION: Reverse polarity connection will result in damage to the inverter. THIS WILL VOID THE WARRANTY.

If the inverter is connected to the incorrect polarity, the fuse will blow. If the unit does not function after replacement of the fuse, the unit must be returned to Vector for repair. Repairs for this type of damage are not covered by warranty.

CAUTION: DO NOT USE WITH POSITIVE GROUND ELECTRICAL SYSTEMS. (THE MAJORITY OF MODERN AUTOMOBILES, RVs, AND TRUCKS ARE NEGATIVE GROUND)

4.3 POWERING AN AC LOAD

The Power Inverter is equipped with a standard AC household-type receptacle and On/Off Switch. Plug the power cord from the equipment you wish to operate into the AC receptacle. The green LED will light to indicate that the unit is functioning. Make sure the wattage rating of your equipment is within 200 watts. If so, turn on your equipment. If an audible alarm sounds, the DC supply voltage is too low. If the inverter is connected to the Main Unit, then the battery needs to be recharged. If the inverter is connected to another DC source, then the voltage is too low because of a discharged battery or the wiring gauge is not heavy enough.

There are three connections on the AC receptacle: hot, neutral and ground. Ground is the round conductor. Do not connect either hot or neutral to ground.

WARNING ABOUT OUTLET STRIP USE: MULTIPLE OUTLET POWER STRIPS WITH SWITCHES & CIRCUIT BREAKERS ONLY INTERRUPT POWER TO THE "HOT" RECEPTACLE TERMINALS. THE "NEUTRAL" TERMINALS REMAIN POWERED WITH RESPECT TO THE "GROUND" TERMINALS. REMOVE APPLIANCE PLUG FROM OUTLET STRIP OR TURN OFF INVERTER BEFORE WORKING ON THE AC APPLIANCE.

DO NOT CONNECT TO AC DISTRIBUTION WIRING: The inverter is engineered to be connected directly to standard electrical and electronic equipment in the manner described above. Do not connect the Power Inverter to household or RV AC distribution wiring. Do not connect the Power Inverter to any AC load circuit in which the neutral conductor is connected to ground (earth) or to the negative of the DC (battery) source.

CAUTION: RECHARGEABLE APPLIANCES:

Certain rechargeable devices are recharged by plugging them directly into an AC receptacle. When first using a rechargeable device, monitor its temperature for the initial ten minutes of use to determine whether it becomes warmer than usual. If excessive heat is generated, it is a good indication that the device should not be used with this inverter. This problem does not occur with the majority of battery-operated equipment. Most of these devices use a separate charger or transformer that is plugged into an AC receptacle. This inverter is easily capable of powering most chargers and transformers.

4.4 PLACEMENT OF THE POWER INVERTER

For best operating results when used away from the Main Unit, the inverter should be placed on a flat surface, such as a vehicle seat or floor. An Inverter Power Cable has been provided for easy positioning of the inverter. Power inverters should only be used in locations that meet the following criteria:

DRY – Do not allow water or other liquids to come into contact with the inverter.

COOL – Ambient air temperature should be between 30°F (-1°C) non-condensing, and 105°F (40°C). Do not place the inverter on or near a heating vent or any piece of equipment that is generating heat above room temperature. Keep the inverter away that from direct sunlight, if at all possible.

VENTILATED – Keep the area surrounding the inverter clear to ensure free air circulation around the unit. Do not place items on or over the inverter during operation. The unit will shut down if the internal temperature gets too hot. Restart the unit after it cools.

SAFE – Do not use the inverter near flammable materials or in any locations that may accumulate flammable fumes or gases.

4.5. OPERATING TIPS

Rated versus Actual Current Draw of equipment most electrical tools, appliances and audio/video equipment have labels that indicate the power consumption in amps or watts. Be sure that the power consumption of the item you wish to operate is rated at 200 watts or less. (If the power consumption is rated in amps AC, simply multiply by the AC volts (115) to determine the wattage). The inverter has overload protection, so it is safe to try to operate equipment rated at 200 watts or less. The inverter will shut down if it is overloaded, and will restart once the overload is removed.

Resistive loads are the easiest for the inverter to run; however, larger resistive loads, such as electric stoves or heaters, require more wattage than the inverter can deliver. Inductive loads, such as TV's and stereos, require more start-up current to operate than do resistive loads of the same wattage rating. Induction motors, as well as some televisions, may require 2 to 6 times their wattage rating to start up. The most demanding in this category are those that start under load, such as compressors and pumps. Testing is the only definitive way to determine whether a specific load can be started and how long it can run. The unit will simply shut down if it is overloaded. To restart the unit after a shutdown due to overloading, momentarily turn off the power to the unit.

THE INVERTER WILL NOT OPERATE HIGH WATTAGE APPLIANCES OR EQUIPMENT THAT PRODUCE HEAT, SUCH AS HAIR DRYERS, MICROWAVE OVENS, AND TOASTERS.

4.6 INVERTER FUSE REPLACEMENT

The following assumes that the Main Unit battery has a charge and that there is no output from the 110 VAC receptacle. If you find that a fuse is blown (open) determine the cause of the short before restarting the power inverter again. Fuse Replacement in Automobile: Most automobile cigarette lighter circuits use fuses at 15 Amps or greater. The inverter can deliver 200 watts with a 20 Amp lighter socket fuse.

The inverter must be removed from the Main Unit to gain access to the fuse. The fuse (spade lug type 30 amperes) is located under the black protective fuse cover on the connector end of the inverter.

1. Lift off the protective receptacle cover from the inverter and set it aside.
2. Press the release buttons that hold the inverter in place and slide the inverter out of the mounting.
3. Lift the end of the black protective fuse cover closest to the power pins and rotate upwards to expose top of fuse.
4. Grasp the fuse in the center and pull away from the inverter.
5. Check the fuse visually or with a continuity checker.
6. If fuse is open (blown) replace with another with same type and rating.
7. Close fuse cover and slide inverter back into its mounting and place the On/Off Switch in the On position.
8. If fuse is good the green LED will light.
9. Check for proper operation by powering a 110 VAC appliance. If there is still a problem, call Vector Technical Support at 954-584-4446.

NOTE: If the Main Unit battery is discharged, the Inverter may also be quickly checked by connecting the Inverter Power Cable to the inverter's power pins and plugging the DC Plug into a known to be operating 12 volt DC accessory socket.

5. INFLATOR/DEFLATOR

This built-in 12 Volt DC/removable Inflator/Deflator is the ultimate inflator for all high volume, low-pressure recreational inflatables. Three different sized nozzles are supplied. Each nozzle will snugly fit either the Inflation Port or the Deflation Port. The Inflator and its nozzles are stored inside the Inflator/Deflator Hatch. **NOTE: Inflator and Deflator port covers on the main unit must be open when inflating or deflating an item.**

5.1 INFLATOR USE IN MAIN UNIT

The Inflator may be used without removing it from the main unit if the inflatable's air valve can be positioned over the required port. The Inflation Port is between the jumper cable clamps; the Deflation Port is on the front of the Main Unit. Both ports have covers that must be opened before the Inflator/Deflator is powered. An On/Off switch located on the Main Unit controls the power to the Inflator/ Deflator. Refer to Figure 1and 2 for locations of Inflator Switch and ports.

5.1.1 INFLATION PROCEDURE

1. Position the Main Unit so you have access to the Inflator Storage Hatch.
2. Open the hatch and remove the three nozzles noting their storage positions.
3. Select the nozzle that fits the inflatable's air valve.
4. Open the Inflation Port cover.
5. Place the selected nozzle on the Inflation Port of the Inflator.
6. Place the Main Unit on its back so the Deflation Port is accessible.
7. Open the Deflation Port Cover.
8. Move the inflatable's air valve over the installed nozzle.
9. Turn On the Inflator Switch and inflate to desired fullness.
10. Turn Off the Inflator Switch and disconnect the nozzle from the valve.
11. Remove the nozzle from the Inflator.
12. Close the Inflation Port and Deflation Port Covers.
13. Turn over the Main Unit and open the Inflator Storage Hatch.
14. Store the nozzle in the hatch in the same position it was before removal.
15. Close the hatch.

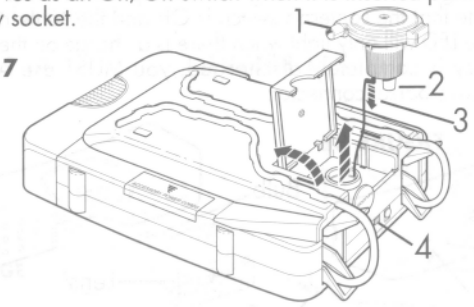
5.1.2 DEFLATION PROCEDURE

1. Position the Main Unit so you have access to the Inflator Storage Hatch.
2. Open the hatch and remove the three nozzles noting their storage positions.
3. Select the nozzle that fits the inflatable's air valve.
4. Open the Inflation Port cover.
6. Place the Main Unit on its back so the Deflation Port is accessible.
7. Open the Deflation Port Cover.
8. Place the selected nozzle on the Deflation Port.
8. Move the inflatable's air valve over the installed nozzle.
9. Turn On the Inflator Switch and deflate the inflated item.
10. Turn Off the Inflator Switch and disconnect the nozzle from the valve.
11. Remove the nozzle from the Inflator/Deflator.
12. Close the Inflation Port and Deflation Port Covers.
13. Turn over the Main Unit and open the Inflator Storage Hatch.
14. Store the nozzle in the hatch in the same position it was before removal.
15. Close the hatch.

5.2 INFLATOR USE AWAY FROM MAIN UNIT

The Inflator/Deflator may be operated away from the Main Unit and powered from any 12 volt DC accessory socket. The supplied Inverter all black Power Cable's pigtail wire connects to the Inflator/Deflator when it is used away from the Main Unit. The DC Plug on the Inverter Power Cable serves as an On/Off switch when it is inserted partially (Off) or fully (On) into a 12 volt accessory socket.

FIGURE 7



1. **INFLATION PORT**
2. **DEFLATION PORT**
3. **CONNECTOR/FOR INFLATOR WIRE**
4. **INFLATOR ON/OFF SWITCH**

NOTE: DO NOT OPERATE INFLATOR DIRECTLY OFF OF AC RECHARGER.

Operation away from the Main Unit begins by opening the Inflator Hatch and noting the positions of the nozzles and inflator. This will ease correct replacement of components in the hatch. The procedure follows:

1. Carefully lift the Inflator/Deflator 4 to 5 inches from the hatch.
2. **Disconnect the small power wire from the Inflator.**
3. Completely lift the disconnected Inflator and set it aside so that dust and dirt cannot enter the ports.
4. Remove the three nozzles from the hatch.
5. Select the nozzle that fits the inflatable's air valve.
6. Open the Cable Storage Hatch and remove the Inverter all black Power Cable (the one with the pigtail wire).
7. Connect the barrel connector on the pigtail wire to the Inflator/Deflator.
8. Refer to next paragraphs for inflation/deflation

5.2.1 INFLATION/DEFLATION PROCEDURE AWAY FROM MAIN UNIT

Place the selected nozzle on either the Inflation or Deflation port of the inflator, as the case may be.

NOTE: The Inflating Port can be identified by location. It is on the wider end of the Inflator/Deflator; the Deflating Port is near the pigtail wire connection.

Push the nozzle onto the correct port.

Position the nozzle against the valve of the inflatable item.

Turn on the Inflator/Deflator on using the DC Plug as a switch and inflate (to desired firmness) or deflate the item. After inflation or deflation, move the nozzle away from the inflatable's valve, and turn off the Inflator/Deflator by disconnecting the DC Plug from the Accessory Socket. Remove the nozzle from the inflator.

DEFLATION NOTE: If the inflatable item's air valve is equipped with a safety flap it may be necessary to hold the flap open with a pencil or similarly shaped object to deflate the item.

5.3 RETURNING THE INFLATOR/DEFLATOR TO MAIN UNIT

Follow the next eight steps to replace the Inflator into it's storage hatch:

1. Make sure the Inflator Switch is turned off.
2. Disconnect the barrel connector on the pigtail wire.
3. Carefully lift the Inflator/Deflator a few inches above the hatch.
4. Connect the Inflator/Deflator to the small pigtail wire in the hatch.
5. Place the inflator and nozzles in the hatch in the same positions they were prior to removal.
6. Close the hatch.
7. Fold the Inverter Power Cable and attached pigtail wire so it can fit in the Cable Storage Hatch.
8. Carefully fit the cables in the hatch and close cover.

6. LANTERN USE AND RECHARGING

6.1 LANTERN USE AND REMOVAL

The self-powered Lantern is controlled by an On/Off latching push-button located on the lens side of the Lantern. The On position powers the Lantern from the self-contained battery providing more than three hours of light from a full charge. The Off position is the recharge mode. A red LED will light to indicate that the Lantern's switch is Off and the Lantern's battery can be recharged see Figure 8A. The LED will only light when there is a charge on the Lantern's internal battery. If Lantern's battery is completely discharged, you MUST use AC or DC Recharge Method through the Lantern's barrel connector.

FIGURE 8A

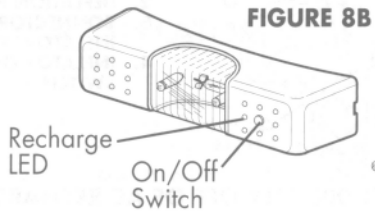
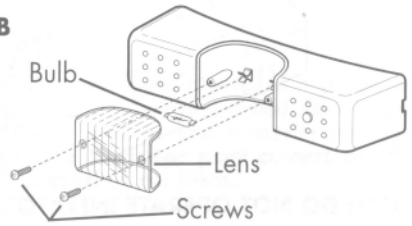
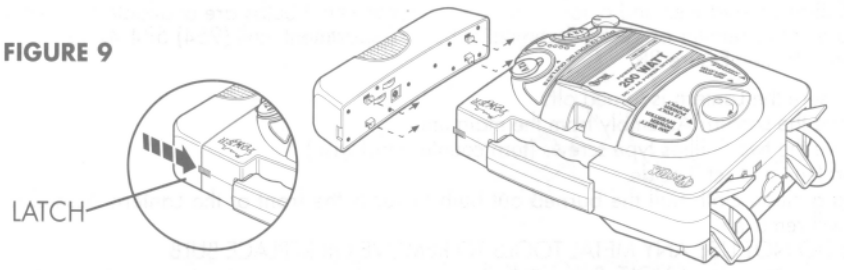


FIGURE 8B



The Lantern may be removed for use away from the Main Unit by first sliding the top latch back and moving the Lantern as shown in Figure 9.

FIGURE 9



6.2 LANTERN TRICKLE CHARGE WHILE MOUNTED ON UNIT

With the Lantern removed, notice the two metal spring contacts that mate with flat metal contacts on the Main unit. These will automatically trickle charge the lantern whenever the Lantern is mounted on the Main Unit, the Main Unit Safety Switch is On and the Lantern turned Off. The trickle charge can be used to "top off" the lantern's battery charge. The trickle charge can take as long as 24 hours to recharge a completely discharged lantern battery and should not be used in conjunction with AC Recharge of the Main Unit's battery.

IMPORTANT: Do not trickle charge completely discharged Lantern Battery. Remove Lantern and recharge Lantern Battery through AC or DC method using barrel connector. Start recharge and press Lantern switch so that Lantern lights and red LED is on. This is the Off/Recharge Mode. Limit AC or DC Recharge to five hours.

RECHARGE LANTERN (SWITCH OFF)

Method of Recharge	Connection Type	Red LED Condition	Lantern Lamp Condition	Max Time Limit
DC (pigtail)	Barrel Connector	Lit	Lit	5 Hours
AC (Adapter)	Barrel Connector	Lit	Lit	5 Hours
Trickle	Mount on Unit Safety Switch On	Lit	Off	24 Hours

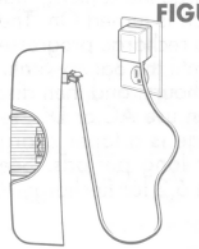
IMPORTANT: MUST USE AC OR DC RECHARGE METHOD WHEN LANTERN BATTERY IS SEVERLY DISCHARGED.

6.3 LANTERN OPERATION AND AC/DC RECHARGE AWAY FROM MAIN UNIT

A barrel connector near the spring contacts accepts either the AC Recharge Figure 10A or DC Inverter Power Cable's pigtail wire Figure 10B. If there is a current applied through the barrel receptacle, as shown in Figure 10A or 10B even though the Lantern switch is Off (in the recharge mode), the Lantern lamp will light and simultaneously recharge the self-contained battery. The Lantern's batteries will be fully charged after five hours. Discontinue charging or operate the Lantern on it's own battery by turning On the Lantern Switch.

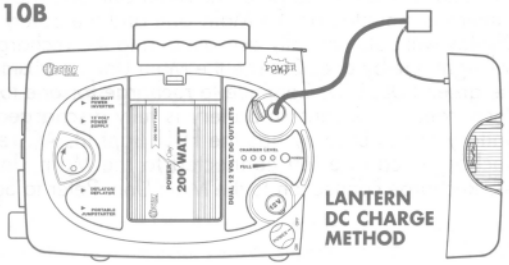
The Main Unit and Lantern can also be recharged independently of one another. The AC Recharger can be directly connected to the Lantern using the barrel receptacle on the Lantern as shown in Figure 10A. The lamp must be turned Off during recharge, otherwise the battery will not charge. The Recharge LED lights when the switch is OFF. Charge for five hours and then disconnect the AC Recharger. Test the lamp for proper operation by switching on the light and observing full brightness.

FIGURE 10A



LANTERN AC CHARGE METHOD

FIGURE 10B



LANTERN DC CHARGE METHOD

6.4 LAMP REPLACEMENT

The only lamp is in the Lantern Assembly. For any maintenance of the lamp, you will need a small Phillips screwdriver and a soft clean cloth. Replacement bulbs are available from your local automotive retailer or Vector Technical Support Department; call (954) 584-4446 for replacements. See Figure 8B.

1. Make sure the Lantern is turned off.
2. Remove the Lantern Assembly from the main unit.
3. Remove the two Phillips type screws (turn counter-clockwise).
4. Lift off lens and set it aside.
5. Using a clean cloth pull the burned out bulb towards the front of the Lantern Assembly. This will remove it.

NOTE: DO NOT USE ANY METAL TOOLS TO REMOVE OR REPLACE BULB

6. Replace with a new 6 VOLT, 3.6 watt bulb.
7. Snap the lens into place and replace the two screws.
8. Carefully turn the screws clockwise to tighten. DO NOT OVER TIGHTEN SCREWS.

7. RECHARGING MAIN UNIT

Lead-acid batteries require maintenance to maintain a full charge and to ensure good battery life. All lead-acid batteries suffer from self-discharge over time and more rapidly when they are at higher temperatures. Therefore, these types of batteries need periodic charging to replace energy lost through self-discharge. When Power City is not in use Vector recommends that the batteries be recharged at least every 60 days.

All batteries must be recharged as soon as possible after each use. If a battery is allowed to remain in a discharged state, battery life will be reduced.

NOTE: RECHARGING BATTERY AFTER EACH USE WILL PROLONG BATTERY LIFE; FREQUENT HEAVY DISCHARGES BETWEEN RECHARGES WILL REDUCE BATTERY LIFE. OVERCHARGING WILL REDUCE BATTERY LIFE.

The Main Unit and Lantern batteries can be recharged using several different methods. The time required to fully recharge these batteries depends on the charge status of the battery after the use of DC appliances, Inverter, and Inflator. The Lantern battery is a separate independent system that can have a dead battery while the main battery can be fully charged. Sections that follow detail recharge of the Main Unit and the Lantern batteries.

NOTE: PRESSING THE BATTERY STATUS PUSH-BUTTON TURNS ON THE BATTERY STATUS DISPLAY ON THE MAIN UNIT - THIS ONLY CHECKS THE STATUS OF THE MAIN BATTERY.

Check the battery charge level by pressing the Charge Status Button. The LED Charge Status display will indicate the level of charge of the main battery.

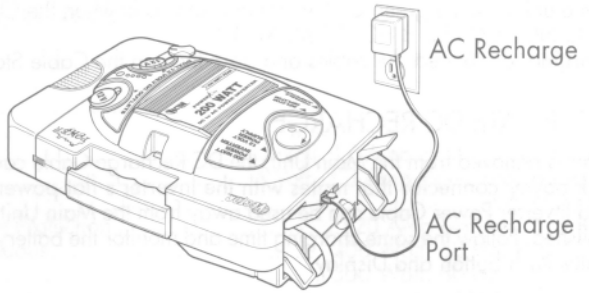
7.1 AC RECHARGE MAIN UNIT

AC Recharge is requires the use of the supplied AC/DC Adapter. The adapter must be powered from 110 volt AC, 60 Hz North American standard household AC receptacles.

7.1.1 AC RECHARGE MAIN UNIT & TRICKLE CHARGE OF LANTERN

For simultaneous recharge of the Main Unit and trickle charge the Lantern, make sure that the Lantern is mounted on the Main Unit and the Safety Switch is turned On. The Battery Status Display will automatically activate during AC recharge. As recharge progresses, the red LEDs will light one by one. Charge the Main Unit and Lantern until the Battery Status Display lights the green FULL LED. Continue to recharge for one to two hours, and then disconnect the AC Recharger. If the Lantern Battery is fully discharged, then use AC or DC, regardless if the Battery Status Display has the FULL light lit. AC recharge is a taper charge and The AC Recharger can be left connected to the Main Unit for long periods. See Figure11 for AC Recharge connection to the Main Unit. Refer to Section 6.2 for Recharge Method.

FIGURE 11



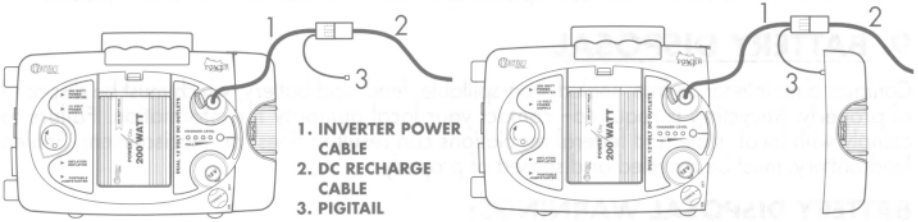
MAKE SURE THAT THE INVERTER, INFLATOR AND LAMP ON/OFF SWITCHES ARE IN OFF POSITION DURING AC RECHARGING. THIS WILL PREVENT BATTERIES FROM RECHARGING.

7.2 DC RECHARGE MAIN UNIT

Power City is supplied with two accessory cables. One cable is a black Inverter Power Cable with an attached thinner cable. The Inverter Power Cable is used to power the inverter when it is used with another accessory socket in a vehicle or boat. An attached thinner wire is dubbed "pigtail" and it is used to rapidly recharge and power the Lantern. The Pigtail wire has a round barrel connector at one end and it also used to power the Inflator when it is removed from the Main Unit. A DC Recharge Cable has red and black wire. This cable connects to the Inverter Power Cable to allow DC Recharge of Main Unit batteries from an external DC source. Accessory cables are stored in their own Cable Storage Hatch in the Main Unit.

Recharging the Main Unit from an external DC power source requires the use of the DC Recharge Cable and the Inverter Power Cable. The two cables are connected together to make a DC Plug to DC Plug power cable. See Figure 12A The pigtail wire can be connected to the Lantern to simultaneously recharge the Main Unit and the Lantern. See Figure 12B.

FIGURE 12A **FIGURE 13B**



MAKE SURE SAFETY ON/OFF SWITCH, INVERTER, AND INFLATOR SWITCHES ARE IN THE OFF POSITION DURING DC RECHARGING. THIS MAY SLOW RECHARGE OF THE MAIN BATTERY.

Unlike the AC Recharge method, DC Recharge does not automatically activate the Battery Status Display. To check the battery status, press the Battery Status Display Push-button. If the Jump Starter's battery is fully discharged, it is recommended that the host vehicle or boat's engine being used for recharging be left operating while the unit is being charged using the 12 volt DC/DC method.

WARNING: DO NOT RECHARGE MAIN UNIT FOR MORE THAN 8 HOURS MAXIMUM USING 12 VOLT DC METHOD. DO NOT CHARGE LANTERN FOR MORE THAN FIVE HOURS USING THE DC RECHARGER METHOD.

1. Remove both power cables from the Cable Storage Hatch.
2. Insert the red DC Recharge Cable's rectangular connector flat pins into the black rectangular connector on the Inverter Power Cable.
3. Insert black DC Plug on the Inverter Power Cable into a DC Accessory socket on the Main Unit.
4. Plug the red DC Plug into an accessory socket in a vehicle, power supply or other 12 VOLT DC source.

5. Charge the unit until the green CHARGED indicator is lit when the Charge Status Button is pressed - DO NOT EXCEED 8 HOURS MAXIMUM.
6. After charging, disconnect the cables and store them in the Cable Storage Hatch.

7.3 ALTERNATE DC RECHARGE

If the Inverter is removed from the Main Unit, the DC Recharge Cable can be directly connected to the black power connector that mates with the Inverter's flat power pins. In this way, the Inverter and Inverter Power Cable can be used away from the Main Unit and DC Recharge can be accomplished. Follow the same charging time and monitor the battery charging by using the Battery Status Push-button and Display.

7.4 SIMULTANEOUS DC RECHARGE AND INVERTER OPERATION

Connecting the Inverter Power Cable and the DC Recharge Cable makes a heavy-duty DC-to-DC Cable that can simultaneously recharge the Main Unit and operate the Inverter. Use with AC appliance wattages over 120 watts and a deeply discharged Main Battery can draw more than the vehicle's accessory socket's fuse can handle without blowing. Use this method with caution.

8. MAINTENANCE/REPLACEMENT PARTS

For replacement parts (bulbs, batteries, charging adapters, cables, etc.), contact Vector Technical Support: (954) 584-4446. Except for a fuse in the inverter and a lamp in the Lantern, there are no user serviceable parts inside Power City. Periodically, the cables and connectors should be inspected for damage, corrosion and dust and dirt. If surfaces are dirty, they can be wiped clean with a cloth moistened with water and a drop of detergent. Contacts can be wiped clean with a dry cloth.

WARNINGS:
OTHER THAN A FUSE IN THE INVERTER AND A LAMP IN THE LANTERN, THERE ARE NO USER SERVICEABLE PARTS INSIDE. DO NOT OPERATE UNIT IF THERE IS ANY EVIDENCE OF DAMAGE. THE PRODUCT MUST BE RETURNED TO VECTOR FOR TESTING AND REPAIR. REPLACE ANY DAMAGED CABLES IMMEDIATELY BEFORE FURTHER USE.

Refer to Section 4.6 for inverter fuse replacement. Refer to Section 6.4 for lamp replacement.

9. BATTERY DISPOSAL

Contains a maintenance-free, sealed, non-spillable, lead acid battery, which must be disposed of properly. Recycling is required– contact your local authority for information. Failure to comply with local, state and federal regulations can result in fines, or imprisonment. Sealed lead battery, must be recycled or disposed of properly.

BATTERY DISPOSAL WARNINGS:
- Do not dispose of the battery in fire as this may result in an Explosion.
- Before disposing of the battery, protect exposed terminals with heavy-duty electrical tape to prevent shorting (shorting can result in injury or fire).
- Do not expose battery to fire or intense heat as it may explode.

10. SPECIFICATIONS:

Jump Start Clamps	400 Amps–Heavy Duty Copper
Jumper Cables	#4AWG Welding Cable
Peak Amps	900
Instant Amps	400
Main Battery	12 Volt, 17 Amp Hour, Sealed Lead-Acid
Lantern Battery	6 Volt, 2.3 Amp Hour, Sealed Lead-Acid
Lantern Lamp	3.6 Watt, 6 VDC
Dual Accessory Socket Protection	20 Amp Self-Resetting Breaker
Power Inverter–Continuous	200 Watt, 60 Hz, 110-120 VAC
Power Inverter–Peak	300 Watt, 60 Hz, 110-120 VAC
Inverter Waveform	Modified sine Wave
Inverter DC Input Range	10.0 to 14.6 VDC
Inverter Audible Alarm	10.6 VDC
Automatic Shutdown	Low Voltage, Overload, Over Temperature
Inflator/Deflator	Low Pressure, High Velocity
Dimensions	17inch(43.2cm)W X 5.5inch(14.0cm)D X 10.5inch(26.7cm)H
Weight	18 Lbs

WARRANTIES:

120 DAY LIMITED WARRANTY REGISTRATION FORM

All Vector Manufacturing, Ltd. products are warranted to the original purchaser only for 120 days from the date of purchase, to be free of defects in materials and workmanship. Vector Manufacturing, Ltd. disclaims any liability for consequential damages. In no event will Vector Manufacturing, Ltd. be responsible for any amount of damages beyond the amount paid for the product at retail. In the event of a defective item, please ship the item prepaid, with a complete explanation of the problem, your name, address and daytime telephone number. Vector Manufacturing, Ltd. will, at its option, replace the defective part.

The following situations are not covered under this warranty:

- ✓ *Cost of shipment to Vector Manufacturing, Ltd.*
- ✓ *Normal wear and tear, including chips, scratches, abrasions, repairs by unauthorized persons or failure to follow recommended care and use instructions.*
- ✓ *Damage caused by misuse, abuse, neglect, alterations, repairs by unauthorized persons, or failure to follow recommended care and use instructions.*
- ✓ *Bulbs and batteries.*

❒ Please activate my Limited Warranty for Model #VEC028AC. Enclose copy of original sales receipt.

Name _____ Street Address _____ City _____

State _____ Zip Code _____

Phone _____ Fax _____ E-mail _____

Store where purchased _____

UPC Number from package (12 digits) _____

All Vector Manufacturing, Ltd. products must be registered within (10) days of purchase to activate this warranty. Mail the completed registration form, along with a copy of the original sales receipt to:

ATTN.: CUSTOMER SERVICE / VECTOR MANUFACTURING, Ltd.
4140 SW 28th Way, Ft. Lauderdale, FL 33312

3 YEAR EXTENDED WARRANTY REGISTRATION FORM

Certain Vector Manufacturing, Ltd. products are warranted to the original purchaser only, for three (3) years from the date of purchase, to be free of defects in materials or workmanship. Vector Manufacturing, Ltd. disclaims any liability for consequential damages. In no event will Vector Manufacturing, Ltd. be responsible for any amount of damages beyond the amount paid for the product at retail. In the event of a defective item, please ship the item to us, prepaid, with an explanation of the problem, your name, address and daytime telephone number. Vector Manufacturing, Ltd. will, at its option, replace or repair the defective part.

The following situations are not covered under this warranty:

- ✓ *Cost of shipment to Vector Manufacturing, Ltd.*
- ✓ *Normal wear and tear, including chips, scratches, abrasions, repairs by unauthorized persons or failure to follow recommended care and use instructions.*
- ✓ *Damage caused by misuse, abuse, neglect, alterations, repairs by unauthorized persons, or failure to follow recommended care and use instructions.*
- ✓ *Bulbs and batteries.*

❒ Please activate my Extended Warranty for Model #028AC. Enclose copy of original sales receipt.

Name _____ Street Address _____

City _____ State _____ Zip Code _____

Phone _____ Fax _____

E-mail _____

Date of purchase _____

Store where purchased _____

UPC Number from package (12 digits) _____

Form of Payment (US$45.00) [ ] Check [ ] Money Order

All Vector Manufacturing, Ltd. products must be registered within (10) days of purchase to activate this warranty. Mail the completed registration form, along with a copy of the original sales receipt, and a check or money order for US$45.00 made payable to Vector Manufacturing, Ltd., to:

ATTN.: CUSTOMER SERVICE / VECTOR MANUFACTURING, Ltd.
4140 SW 28th Way, Ft. Lauderdale, FL 33312